M2Z networks

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Analysis of the 10 September 2008 Joint *Ex Parte* (Filed by AT&T, CTIA, MetroPCS Communications, Inc., Nokia Inc., and T-Mobile USA)

Attachment A to the 9.23.08 *Ex Parte* Submission of M2Z Networks

Overview

- On September 3, 2008 – September 5, 2008, the FCC observed tests performed by T-Mobile USA to assess potential interference from proposed AWS-3 operations in the 2155-2180 MHz band to AWS-1 operations in the 2110-2155 MHz band.
- On September 12, 2008, the FCC made the data from the test publicly available.
- Prior to the release of the Commission's data, AT&T, CTIA, MetroPCS Communications, Inc., Nokia Inc., and T-Mobile USA, Inc. submitted a "unified" but wholly unsupported ex parte which made claims that are not sustained by the actual data released by the Commission.
- This document seeks to correct the record in WT Docket Nos. 07-195 and 04-356.

- **Claim**: “The testing results provided were completely consistent with the test results previously provided by T-Mobile USA, Inc. in WT Dkt. No. 07-195 on August 11, 2008”
- **Analysis: Irrelevant.**
  - Improper signals used in the September tests were also used in T-Mobile’s original testing. Far from supporting the approach proposed by the Joint filers, this statement squarely calls T-Mobile’s prior test into question.

- **Claim**: "Under the conditions tested, out-of-band emission interference from AWS-3 interfering sources appears to be the most dominant interference mechanism"
- **Analysis: We recognize that OOBE is an important factor. However, this statement is qualified for good reason.**
  - The test data demonstrates that the adjacent channel interference (aka blocking) testing was flawed. The data on page 6 of the Commission's AWS-3 test results shows even Wi-Fi interference to AWS-1 at a -25.2 dBm signal, the equivalent of 11 meters distance from a Wi-Fi base station. This raises serious doubts about the realism of the signals used to emulate AWS-3 use.

- **Claim**: "Interference would be present from an AWS-3 interfering source should the Commission adopt its proposed out-of-band emission limit of 60 + 10 log P (i.e. -30 dBm/MHz)"
- **Analysis: False. Nothing in the testing showed that harmful interference would result from a 60 + 10 log P OOBE limit.**
  - The tests only show what is already known; that interference would be present only when the interference source is very close to the AWS-1 device and the AWS-1 signal received by the mobile is exceptionally low, among other things. However, "interference" that does not rise to the level of "harmful" is fully expected in radio systems. Indeed, most FCC radio services are "interference limited services" as the Commission has found the alternative "noise limited services" to be an inefficient use of spectrum in general.

- **Claim**: “Receiver overload interference, while not as significant as out-of-band emission interference, would still be significant at or below the Commission’s proposed 23 dBm/MHz power limit.”
- **Analysis: There is no basis for this conclusion.**
  - Receiver overload was not separately tested. It is not possible to separate OOBE from the receiver overload when using such a broadband emission as the interference source. We believe the receiver overload tests were corrupted and dominated by OOBE effects. For example, we note that the “receiver overload” tests performed by T-Mobile resulted in the same level of interference regardless of whether there was a 10 or 250 MHz separation! Due to the limitations of these tests, we still hold our original position that the effect of improved duplexer filters would permit more than 33 dBm transmitter power without receiver overload becoming significant.

- **Claim**: “The receive signal levels used during the testing were representative of normal operating parameters for AWS-1 systems;”
- **Analysis: The tested signal levels are far below “normal operating parameters.”**
  - The testing included levels as low as -105 dBm. However, the Commission has never protected to this level and systems are not designed to provide reliable service at that level. For example, in this proceeding, Ericcson has stated that -103 dBm is the limit of sensitivity.
  - The lowest level of protection ever instituted by the Commission was in the UWB R&O in which the Commission concluded "We believe that a PCS received signal level of -96 dBm/1.25 MHz adequately characterizes a low level PCS signal level based on real world applications."
  - Because AWS-1 systems use 5 MHz channels, not 1.25 MHz as in PCS, a comparable protection level would be -90 dBm in the AWS-1 context.

- **Claim**: “The interference scenarios would not be rare – under normal operating conditions interference to AWS-1 devices from AWS-3 operations should the Commission adopt its proposed technical rules would be widespread and prevalent.”
- **Analysis: There is no basis for this conclusion.**
  - Since this signal distribution was not determined during the tests, this conclusion lacks any factual foundation.